NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2019
PRIMARY 6

SCIENCE

BOOKLET A

28 Multiple Choice Questions (56 marks)

Total Time for Booklets A and B : 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

Booklet A		**/ 56**
Booklet B		**/ 44**
Total		**/ 100**

Name: _____( ) Class: P 6 _____

Date : 15 May 2019 **Parent's Signature:__ _____**

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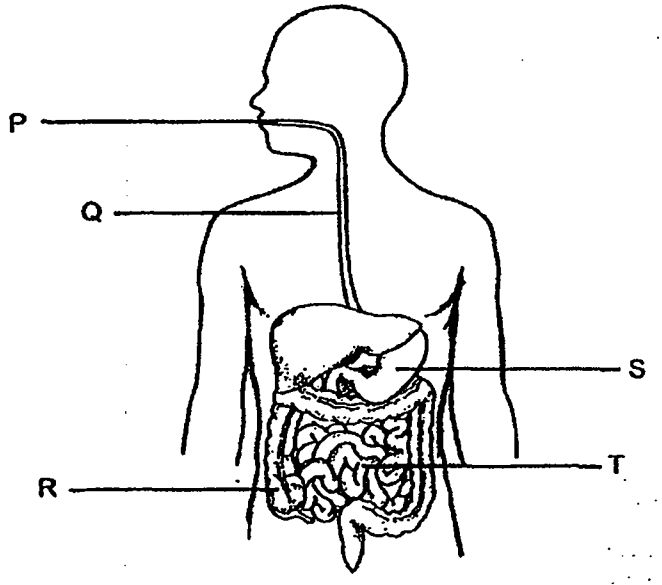
Section A: (28 × 2 marks = 56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade the correct oval on the Optical Answer Sheet.

1. The diagram below shows our digestive system.



Study statements A to D carefully.

A Both P and Q produce digestive juice.
B The digestion of food is completed in R.
C Water is absorbed from the undigested food in S.
D Digested food is absorbed into the bloodstream in T.

Which of the above statements is/are correct?

(1) D only
(2) A and B only
(3) B and C only
(4) A, C and D only

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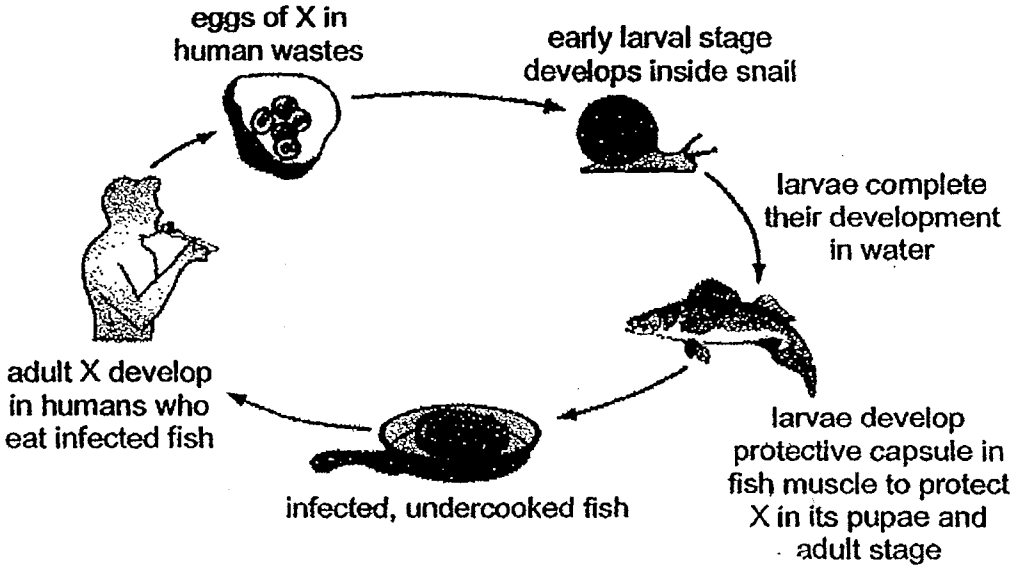
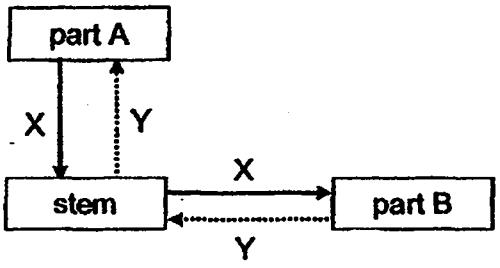
2. The diagram below shows the development of organism X from eggs.



The diagram above shows that organism X _____.

(1) dies when it enters the fish
(2) completes its life cycle in the snail
(3) depends on other organisms for survival
(4) can be killed easily with heat during cooking

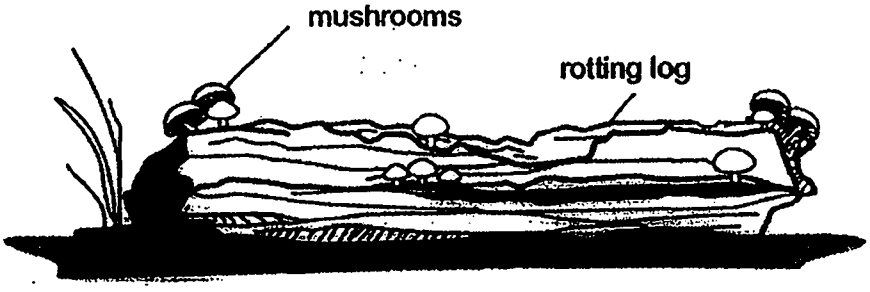
3. Parts A and B in the diagram below represent the different parts of a plant. The arrows X and Y show the transportation of water or food from one part of the plant to another part of the plant.



Which of the following correctly represents part A, part B, arrow X and arrow Y?

	Arrow X	Arrow Y	Part A	Part B
(1)	food	water	flower	leaf
(2)	food	water	leaf	roots
(3)	water	food	leaf	roots
(4)	water	food	leaf	flower

4. The diagram below shows mushrooms growing on a rotting log.



Which of the following statements are correct when the mushrooms act on the rotting log?

A They release oxygen into the air.
B They release carbon dioxide into the air.
C They provide food and nutrients for the rotting log.
D They break down the rotting log into simple substances.

(1) A and C only
(2) A and D only
(3) B and C only
(4) B and D only

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5. The table below provides a description of some physical factors in four different habitats.

Physical Factors	Habitats			
	A	B	C	D
Amount of moisture	Low	Low	High	High
Light intensity	Low	High	High	Low
Average temperature (°C)	23	18	25	21

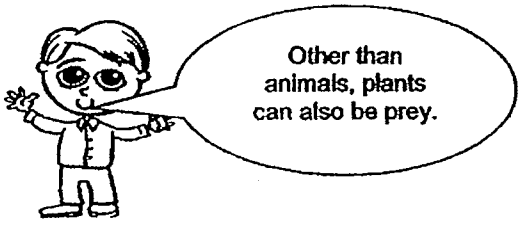
Organism X has the following characteristics:

- thrives in a damp environment
- prefers to stay in a dark environment
- most active when the surrounding temperature ranges from 20 °C to 25 °C

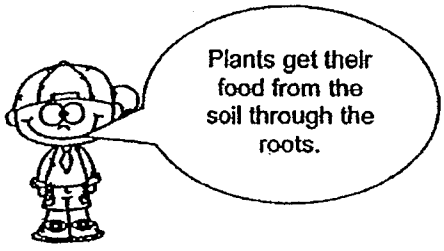
Based on the given information, in which habitat would you find the greatest number of organism X?

(1) A
(2) B
(3) C
(4) D

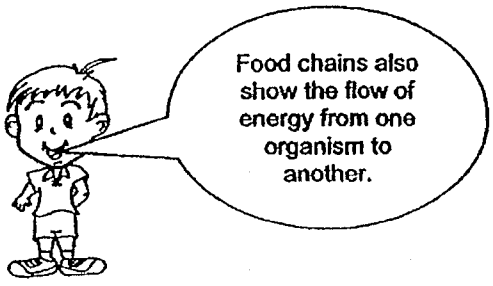
6. Four boys made some statements.



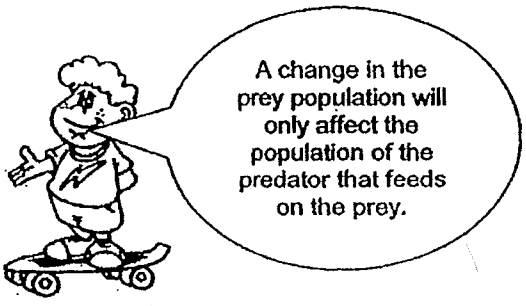
Ahmad



Ben



Chris



Dawei

Who made the correct statement(s)?

(1) Chris only
(2) Ben and Chris only
(3) Ahmad and Dawei only
(4) Ahmad, Ben and Dawei only

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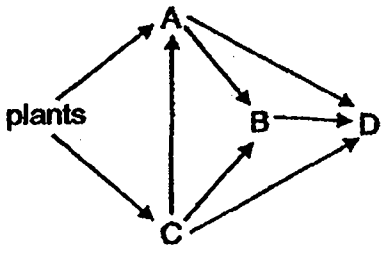
7. The table below shows four animals, A, B, C and D, and the types of food they eat.

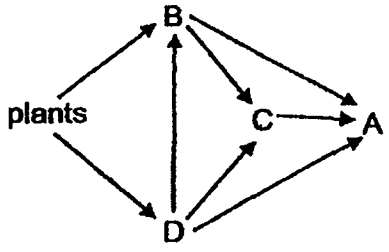
Animals	Type of food consumer
A	animal-eater
B	plant-and-animal-eater
C	animal-eater
D	plant-eater

Which of the following shows a possible food relationship among the organisms?

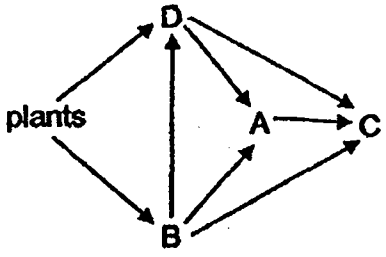
(1)



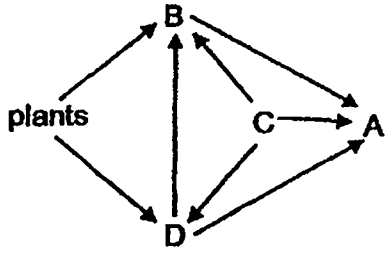
(3)



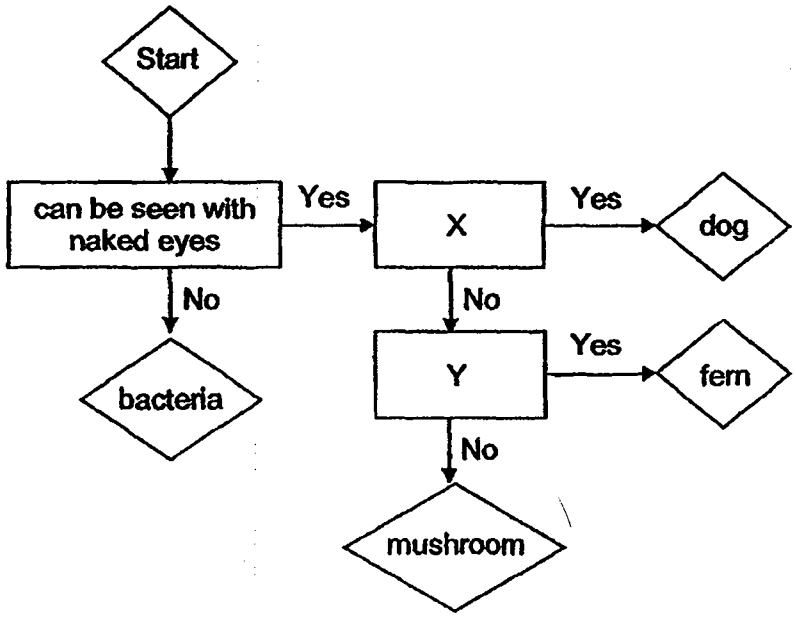
(2)



(4)



8. The flow chart below provides information on the characteristics of four different organisms.



Two characteristics of living things are represented by the letters X and Y. Based on the information in the flow chart, which characteristics are best represented by the letters X and Y respectively?

	X	Y
(1)	Can respond to changes around them	Reproduces by spores
(2)	Can respond to changes around them	Makes its own food
(3)	Moves from place to place on its own	Reproduces by spores
(4)	Moves from place to place on its own	Makes its own food

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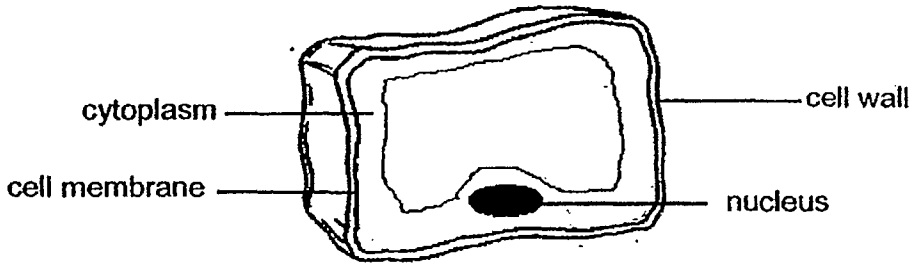
9. Four students, Abdul, Bala, Charles and Ding Ding, observed a cell under a microscope.



They observed that the cell has the following cell parts and they made the following statements:

Student	Statement
Abdul	It is a plant cell because it has a cell wall.
Bala	It is an animal cell because it has no chloroplast.
Charles	It is a plant cell because only plant cells have a cell membrane.
Ding Ding	It is an animal cell because only animal cells have a nucleus.

Whose statement(s) is/are correct?

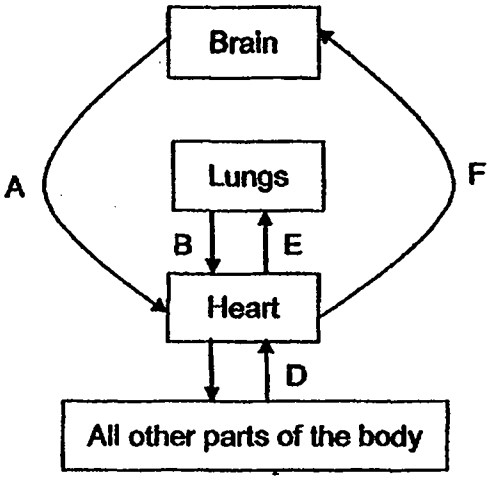
(1) Abdul only
(2) Bala only
(3) Abdul and Charles only
(4) Bala and Ding Ding only

10. Which of the following statements correctly show the similarities between the sexual reproduction in humans and in flowering plants?

A Both require pollination to take place before fertilisation.
B Both require male and female reproductive parts for reproduction.
C Both the ovaries will swell and become fruits and the ovules will become seeds.
D Both the male reproductive cell will fuse with the female reproductive cell during fertilisation.

(1) A and C only
(2) B and D only
(3) A, B and D only
(4) B, C and D only

11. The diagram below shows how blood circulates in a human body. Arrows A, B, C, D, E and F represent the blood vessels.



Which blood vessels contain blood rich in oxygen?

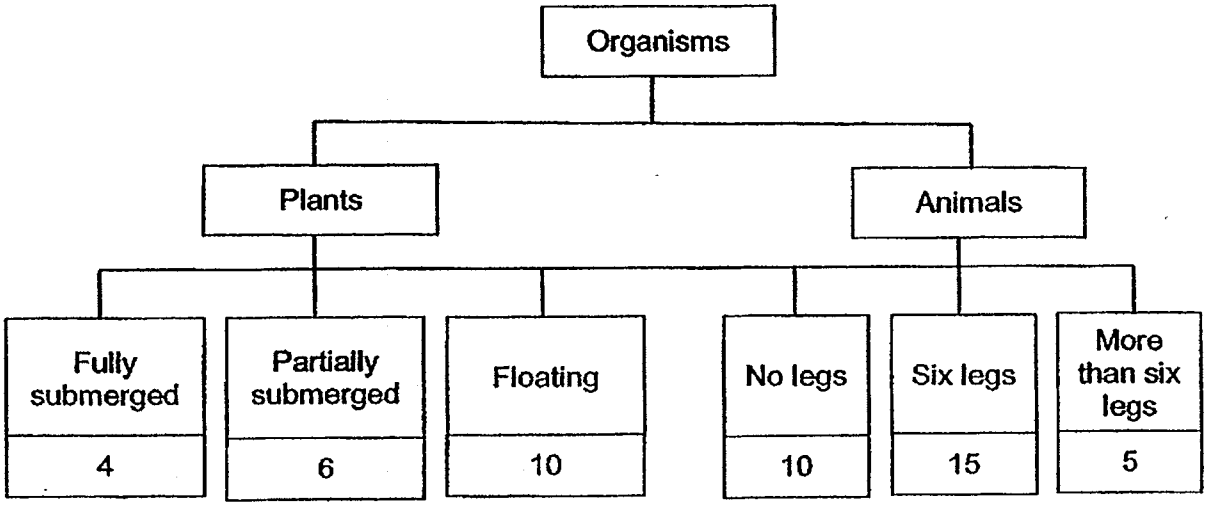
(1) B and C only
(2) A, D and E only
(3) B, C and F only
(4) A, D, E and F only

12. Which of the following statements about food made during photosynthesis are correct?

A Food made by plants will be stored as starch.
B Food made by plants provides them with the energy to carry out life processes.
C Food made in the leaves is transported to all parts of the plant.
D Photosynthesis only takes place in the parts of the plants with chlorophyll.

(1) A and D only
(2) B and C only
(3) B, C and D only
(4) A, B, C and D

13. A group of Primary 6 pupils counted the number of plants and animals found in the school pond. They recorded their findings in the chart shown below.



Based on the information in the chart above, which of the following statements about the plants and animals are correct?

A There was only one community.
B There were 50 populations in the school pond.
C There were fewer insects than plants in the school pond.
D There were at least three populations of animals in the school pond.

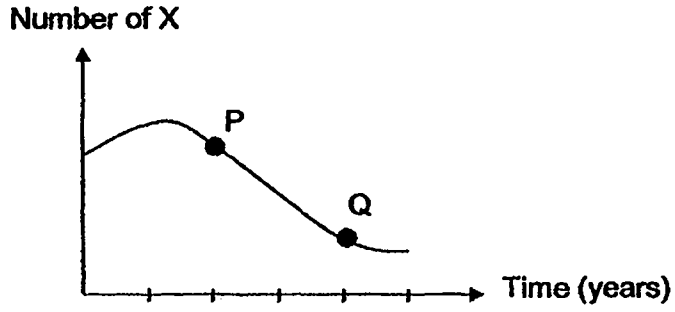
(1) A and B only
(2) C and D only
(3) A, C and D only
(4) A, B, C and D

14. Animals X, Y and Z are organisms living in a grassland habitat.

The food chain below shows the food relationships among the organisms.

grass ⟶ X ⟶ Y ⟷ Z

The graph below shows the population size of X for the last 5 years.



Which of the following statements describe the possible causes for the change in the population of X from point P to Q?

A There was a prolong period of drought.
B There was a decrease in the population of Z.
C The birth rate of X was greater than its death rate.
D A disease-causing organism killed the population of Y.

(1) A and B only
(2) C and D only
(3) A, B and D only
(4) B, C and D only

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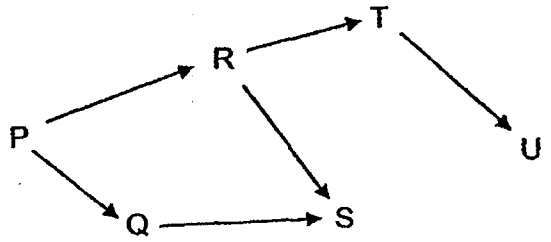
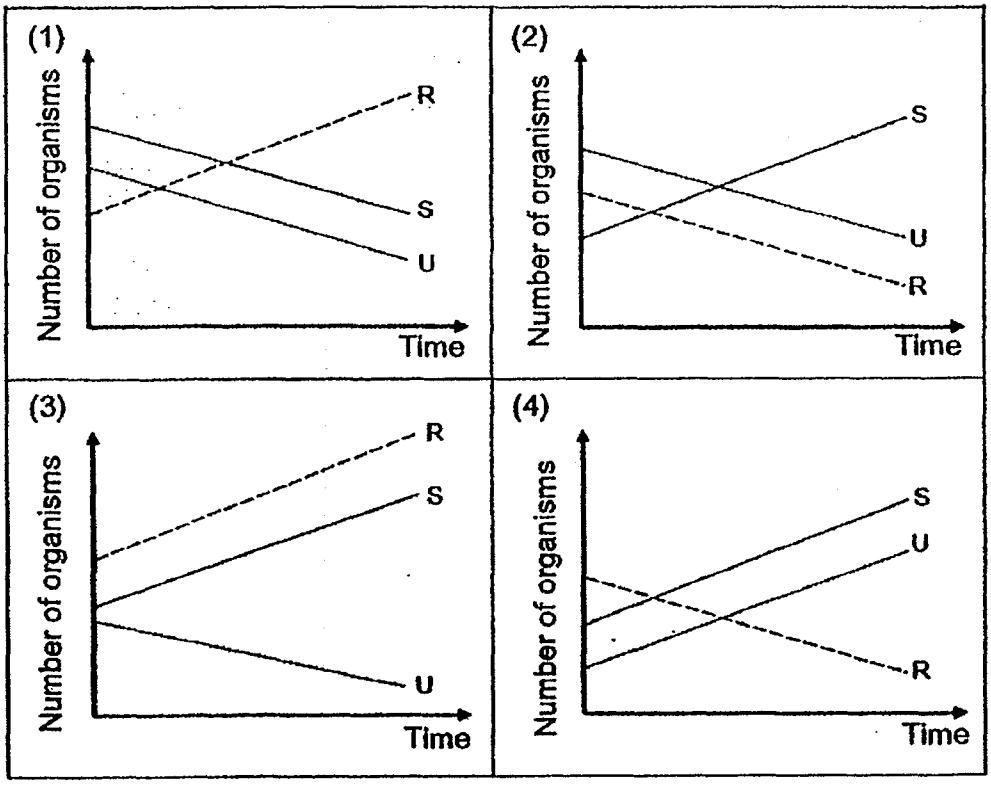
15. Study the food web below.

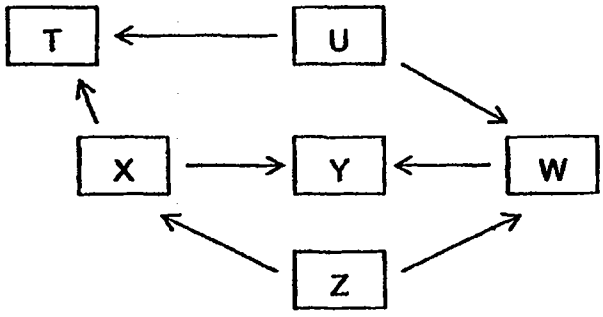


When animal T migrated out of the habitat, the number of animal Q remains the same.

Which of the following graphs shows how the populations of R, S and U are most likely to be affected?



16. Study the food web given below. U, T, W, X, Y and Z represent organisms in the food web.

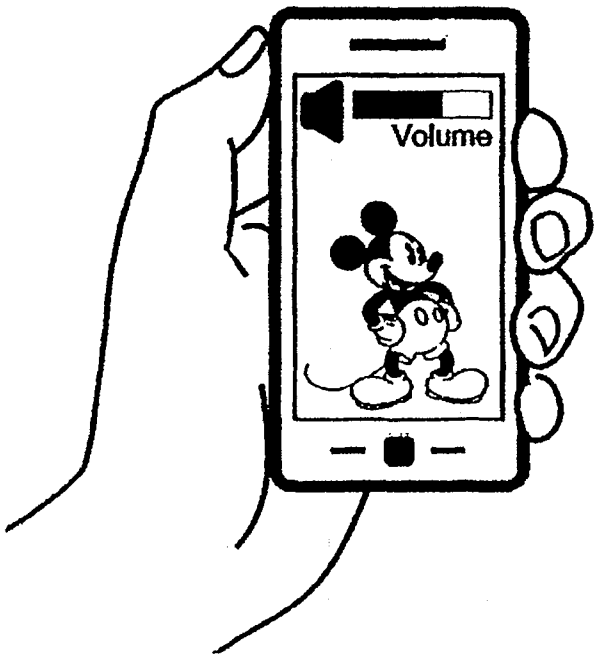


Which of the following statements about the food web is/are correct?

A There is only one food producer.
B There are more animal-eaters than plant-eaters.
C Organism U transfers energy directly or indirectly to all other organisms in the food web.
D A decrease in the number of organism T will affect the population of all the other organisms in the food web.

(1) A only
(2) D only
(3) A and B only
(4) C and D only

17. Josh uses his mobile phone to watch his favourite movie clip.



Which of the following correctly identifies the useful energy and the unwanted energy of his mobile phone?

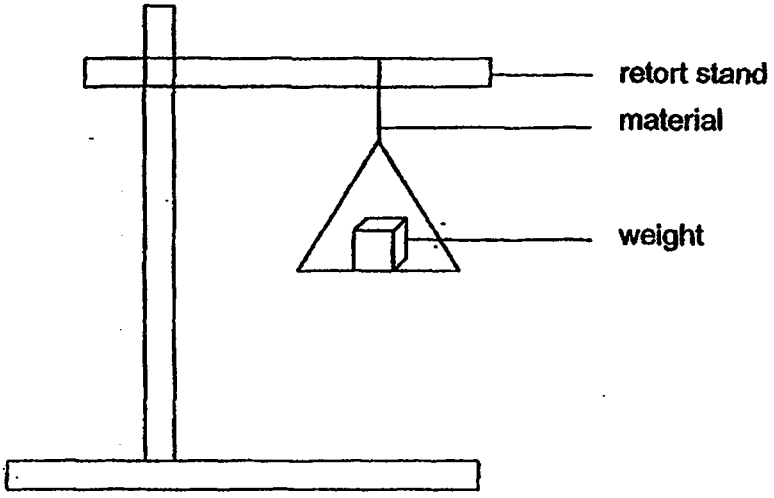
	Useful energy	Unwanted energy
(1)	Heat Energy	Light Energy + Sound Energy
(2)	Heat Energy + Light Energy	Sound Energy
(3)	Heat Energy + Sound Energy	Light Energy
(4)	Light Energy + Sound Energy	Heat Energy

18. Which of the following statements about forces are correct?

A A force can stop a moving object.
B A force can move an object at rest.
C A force can change the shape of an object.
D A force can change the speed of a moving object.

(1) A and D only
(2) B and C only
(3) A, B and D only
(4) A, B, C and D

19. Hannah carried out an experiment to find out the strength of four different materials, E, F, G and H.



She added weights until the materials broke. The table below shows the number of weights that each material could hold before it broke.

Type of materials	Number of weights added before the material broke
E	6
F	3
G	8
H	10

Arrange the materials according to their strength, starting from the weakest to the strongest.

	Weakest → Strongest			
(1)	F	E	G	H
(2)	F	G	E	H
(3)	H	E	G	F
(4)	H	G	E	F

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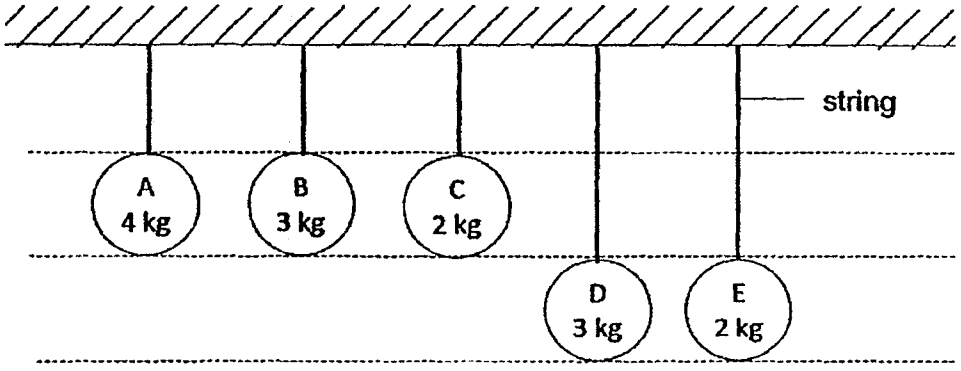
20. Alesea tied five balls of the same size each to a string and hung them at different heights as shown in the diagram below.



She then cut the strings and let the five balls drop on the tray of sand. She measured the depth of depression made by each ball in the sand and recorded the results in the table below.

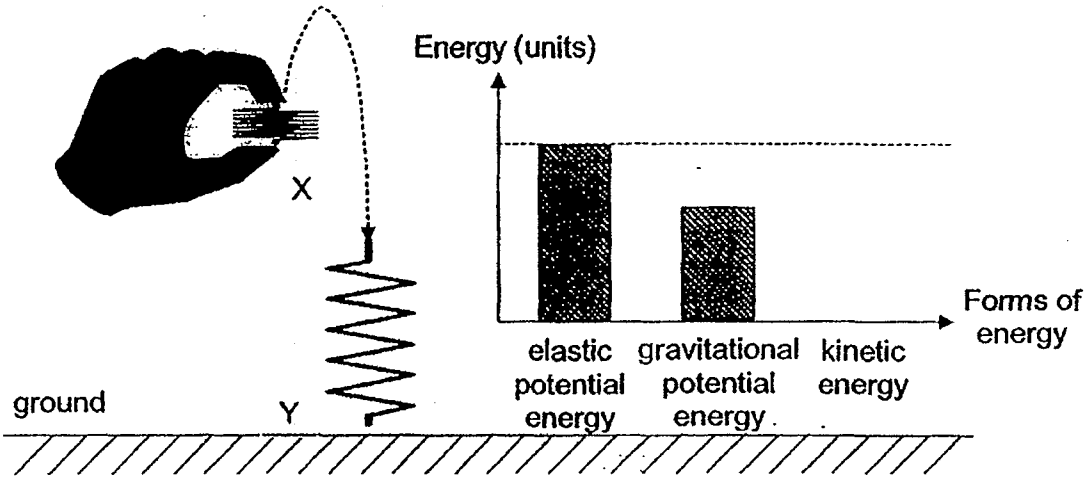
Ball	A	B	C	D	E
Depth of depression made by the ball in the sand (cm)	5	4	2	2	1

Which of the following statements is/are correct?

P Ball E has less gravitational potential energy than ball C.
~~Q~~ Ball A has more gravitational potential energy than ball B.
R Ball B has the same amount of gravitational potential energy as ball D.
S Comparing balls of the same mass, the greater the height of the ball above the ground, the greater the amount of gravitational potential energy it possesses.

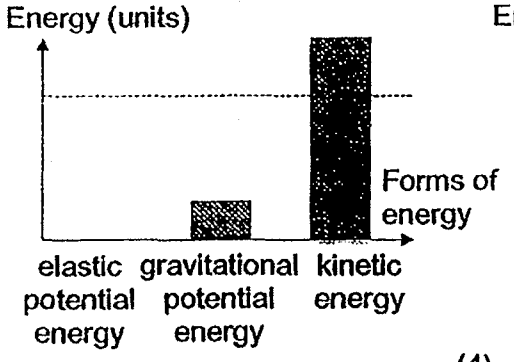
(1) Q only
(2) P and R only
(3) P, Q and S only
(4) P, Q, R and S

21. A spring is compressed and released at X. It moves to Y as shown in the diagram below. The graph shows the amount of different forms of energy possessed by the spring at X.

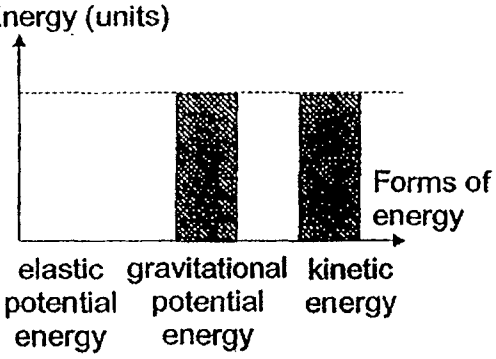


Which of the following graphs shows the amounts of different forms of energy possessed by the spring at Y before it hits the ground?

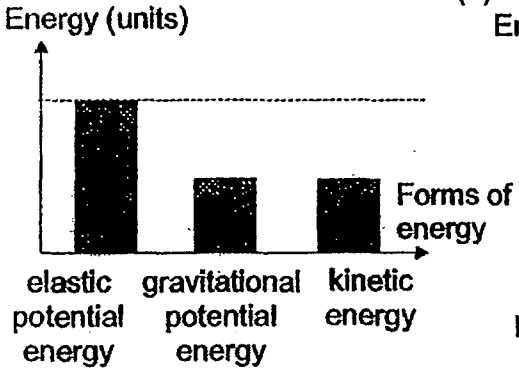
(1)



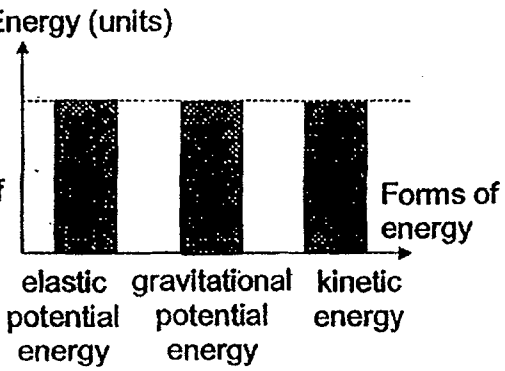
(2)



(3)



(4)



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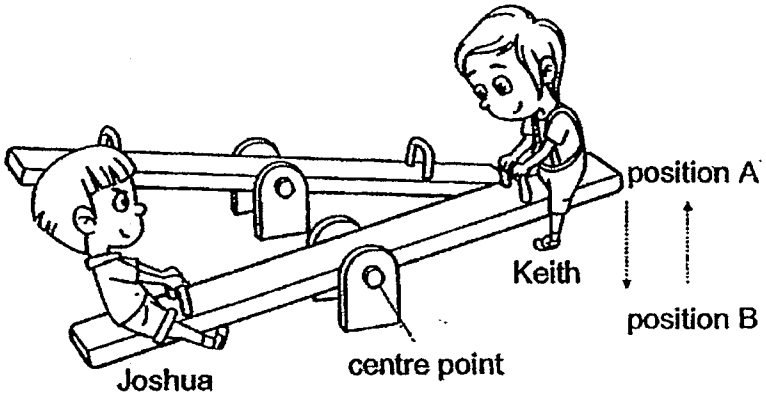
22. Study the diagram below.

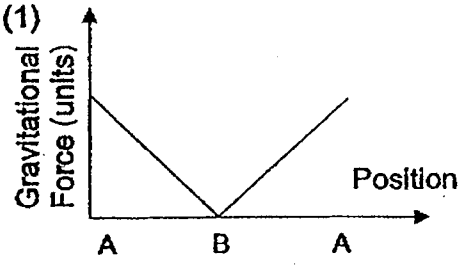


Joshua and Keith were playing see-saw in the playground. A see-saw is a long, narrow board supported by a single centre point. When Joshua moves down, Keith will move up.

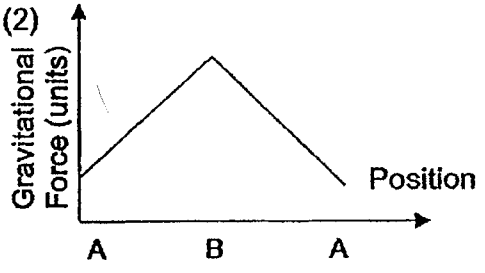
From position A, Keith moves down to position B and he moves up to position A again. The cycle repeats itself.

Which of the following graphs shows the amount of gravitational force acting on Keith when he moves up and down on the see-saw?

(1)



(2)



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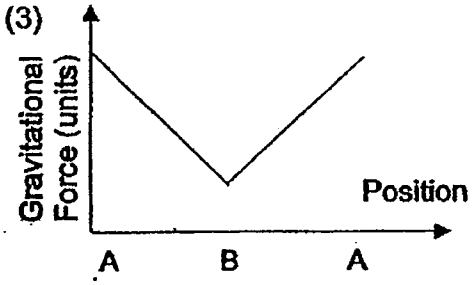

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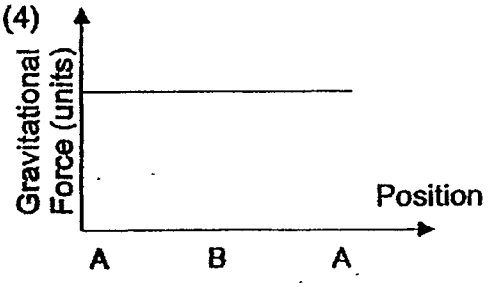

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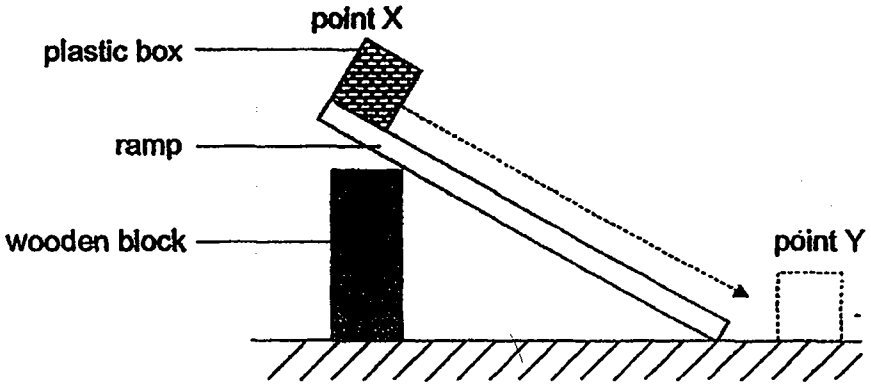
23. Elizabeth wanted to find out which liquid is the best lubricant for reducing friction between two surfaces. She set up the experiment as shown in the diagram below.

She coated the surface of the ramp with liquid P and released the plastic box at point X. She repeated the experiment three times and measured the time taken for the plastic box to reach Point Y.



The experiment was then carried out with liquids Q, R and S.

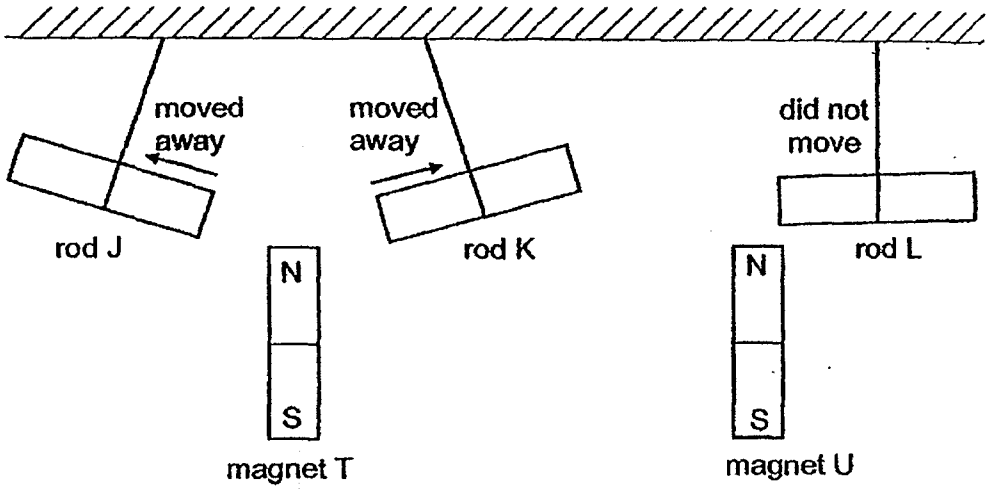
The table below shows the average time taken for the plastic box to reach Point Y.

Type of liquid	Average time taken for the block to reach point Y (s)
P	2.3
Q	3.6
R	0.8
S	1.9

Which of the following shows the correct order of liquids, starting from the liquid that reduces the most amount of friction to the liquid that reduces the least amount of friction between the plastic box and the surface of the ramp?

	Reduces the most amount of friction →			Reduces the least amount of friction
(1)	Q	P	S	R
(2)	Q	S	P	R
(3)	R	P	S	Q
(4)	R	S	P	Q

24. Three rods, J, K and L, were tied to three similar strings and mounted onto the ceiling. Two strong magnets, T and U, were brought near the rods as shown below.

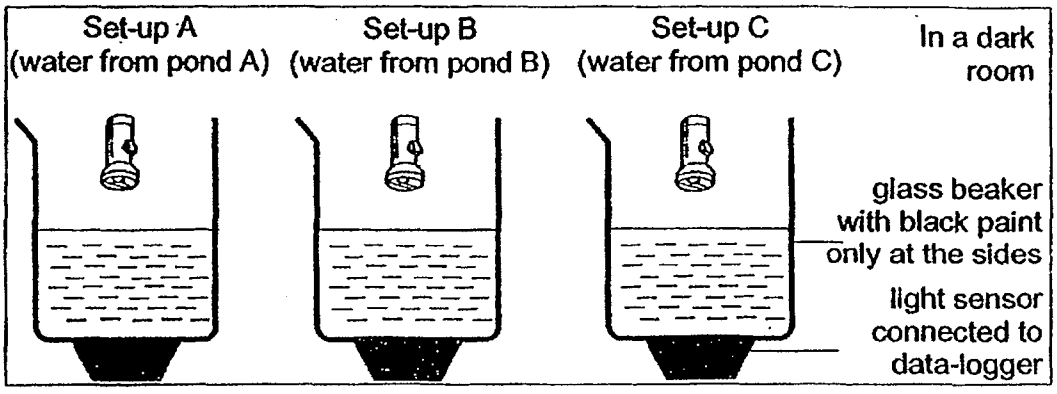


Which of the following are possible explanations for the above observations?

V Rod J must be a magnet.
W Rod L must be a magnet.
X Rod K and rod L are made of magnetic materials.
Y There is a magnetic force of repulsion between rod K and magnet T.

(1) V and X only
(2) V and Y only
(3) V, X and Y only
(4) W, X and Y only

25. Nadna wants to find out which pond allows the most amount of light to reach the fully-submerged plants. She poured the same amount of water from three different ponds into each beaker and conducted the experiment in a dark room as shown in the diagram below.



Nadna recorded the amount of light detected by the light sensor for the three set-ups. She took three readings for each set-up and calculated the average of the readings. The table below shows the average reading for each set-up.

Set-up	Average amount of light detected by the light sensor (unit)
A	1000
B	2150
C	3300

Based on the results above, which of the following statements is/are correct?

S Water from pond A allows the fully-submerged plants to carry out photosynthesis at the fastest rate.
T Water from pond C allows most amount of light to reach the fully-submerged plants.
U Set-up B allows more light to reach the fully-submerged plants than set-up C.

(1) T only
(2) S and T only
(3) S and U only
(4) S, T and U

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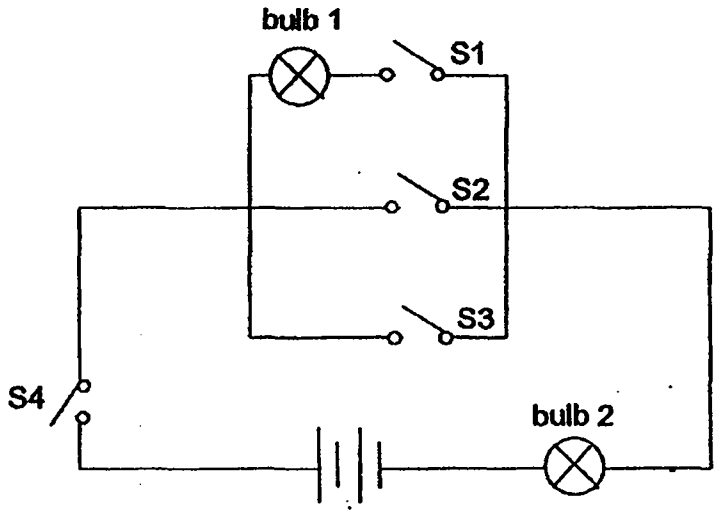
26. The diagram below shows an electric circuit. The batteries and bulbs are all working properly.

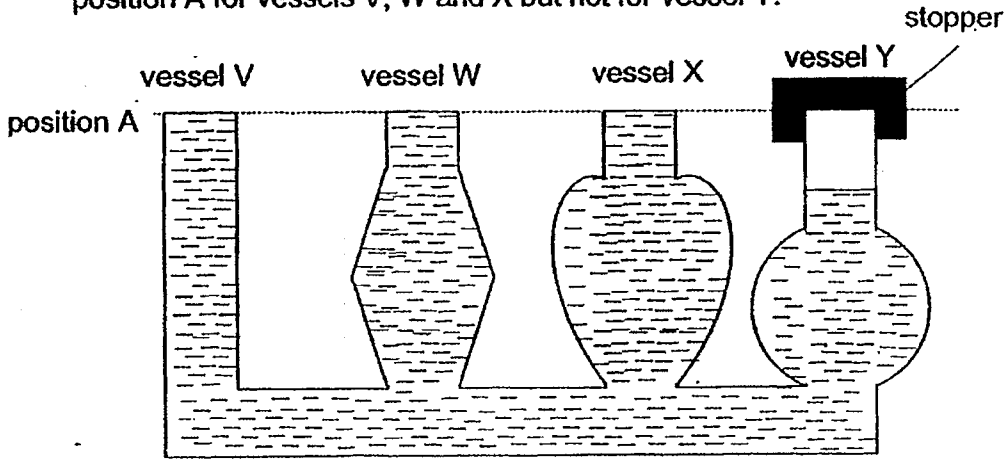


Which pair of switches must be closed in order for both bulbs to light up?

(1) S1 and S2
(2) S1 and S4
(3) S2 and S3
(4) S2 and S4

27. The diagram below shows four vessels, V, W, X and Y, that are connected to the same base. Only the opening of vessel Y is covered with a stopper.

Zena poured a jug of water through vessel V, the water level rose to position A for vessels V, W and X but not for vessel Y.



Based on the information provided, which of the following statements best explains why the water level in vessel Y is lower than the water level in the rest of the vessels?

(1) The air in vessel Y has mass and does not have a definite volume.
(2) The water has a definite volume and cannot be compressed in vessel Y.
(3) The air in vessel Y occupies space and cannot escape out of the vessel.
(4) The water does not have a definite shape and takes the shape of the different vessels.

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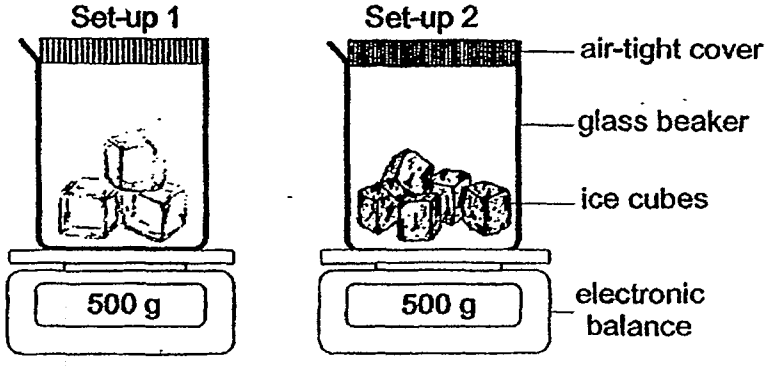
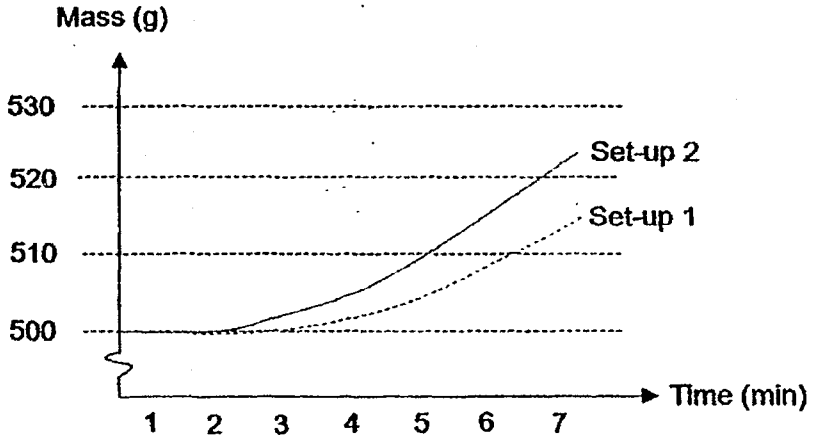
28. Henry set up the experiment as shown below. He used the same amount of water to make the ice-cubes in both set-ups 1 and 2.



Henry recorded the mass of both set-ups over a period of 7 minutes and plotted the line graph below.



Which of the following statements best explain the difference in the increase in mass for both set-ups over time?

A The mass of ice cubes in set-up 2 is more than in set-up 1 at the start of the experiment.
B The exposed surface area of the ice cubes in set-up 2 is more than in set-up 1.
C The surface of the beaker in set-up 2 is cooler than set-up 1 from the 2nd minute to the 7th minute.
D More air condenses on the cooler surface of the beaker in set-up 2 than in set-up 1.

(1) A and D only
(2) B and C only
(3) B, C and D only
(4) A, B, C and D

End of Booklet A

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NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 – 2019
PRIMARY 6

SCIENCE

BOOKLET B

12 Open-ended questions (44 marks)

Total Time for Booklets A and B : 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

Section B		/ 44

Name: _____ ( ) **Class: P 6**_____

Date : 15 May 2019 **Parent's Signature:**_____

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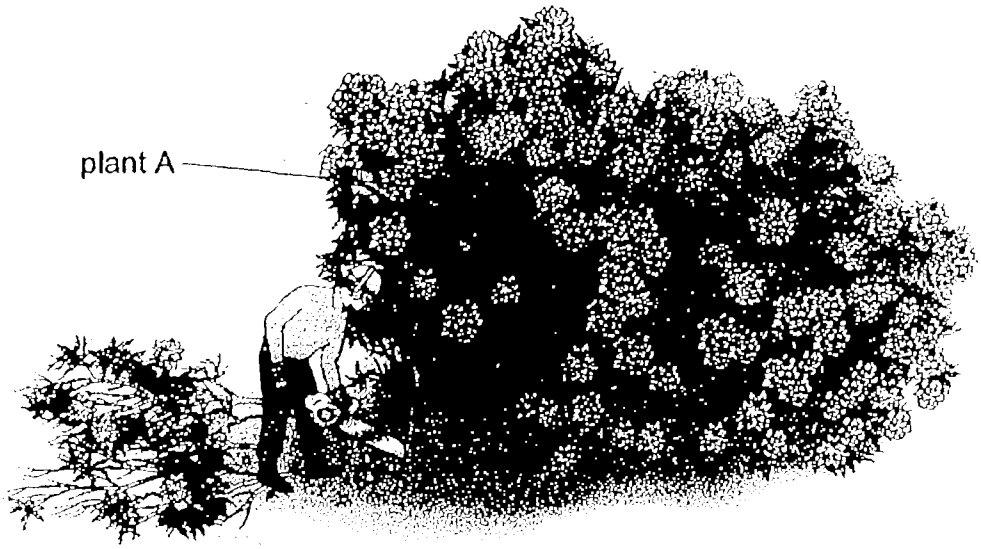
Section B: (44 marks)
Write your answers to question 29 to 40.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. Plant A grows bigger and faster than other plants.
The diagram below shows a man cutting down plant A.



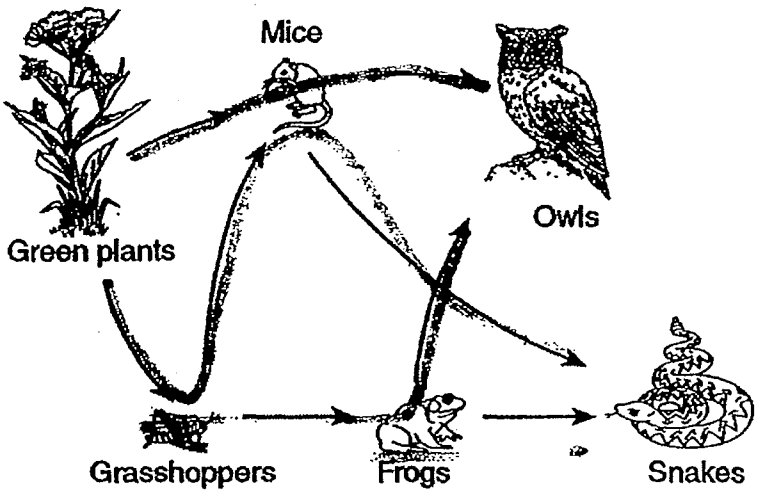
(a) Scientists think that the roots of plant A might produce a chemical that stops other plants from growing near them. How does this help plant A to grow better? [1]

(b) Give another reason why hardly any other plants can grow under the bushes of plant A. [1]

(c) After plant A and their roots are cleared away, there will not be any of the chemical in the soil. What will happen to the population of other plants growing there? Explain why. [1]

Score 3

30. Study the food web shown below.



(a) How are the feeding relationships of the mice different from the feeding relationships of the other animals in the food web? [1]

(b) How many food chains are there in the food web? [1]

(c) Explain how the energy for all the organisms in the food web can be traced back to the sun. [1]

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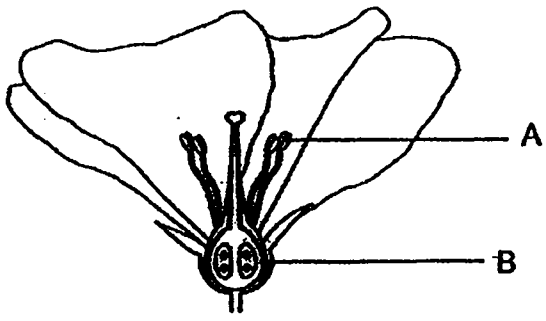
Score 3

31. The diagram below shows the structure of flower X.



Flower X

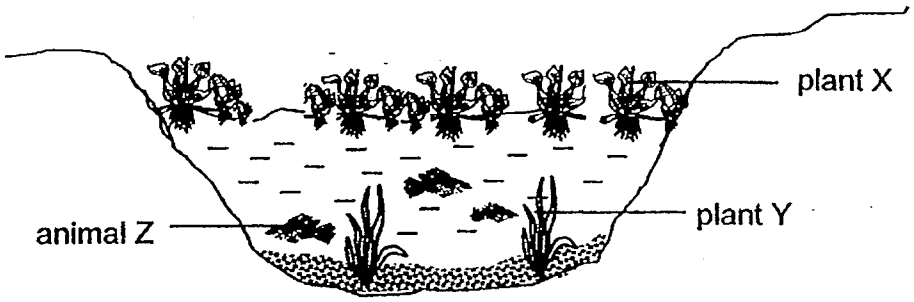
(a) What is the function of part A? [1]

(b) Bees are often seen visiting flower X. Describe how the bees help to pollinate flower X? [1]

(c) How would the removal of part B affect flower X? Explain your answer clearly. [1]

Score	3

32. Joanne recorded some observations about the aquatic plants in her school pond over a period of 3 months. The table below shows her findings.



Month	Number of plant X	Number of plant Y
January	20	16
February	35	9
March	85	3

(a) From the table above, what is the relationship between the number of plant X and the number of plant Y? [1]

(b) Give an explanation for your answer in (a). [1]

(c) The organisms in the pond are interdependent on one another.

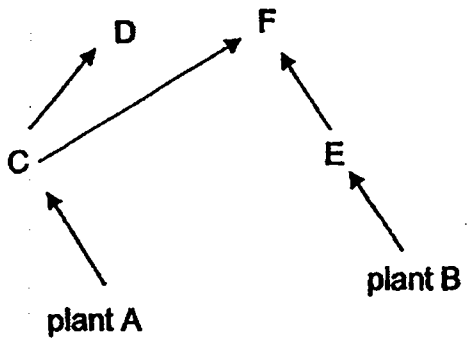
(i) State one way how plant X and plant Y can benefit animal Z. [1]

Plant X: _____

Plant Y: _____

(ii) Explain how animal Z can benefit plant Y. [1]

33. The diagram below shows a food web in a sea community.



(a) In the food web above, is there an organism that is both a prey and a predator? Explain your answer. [1]

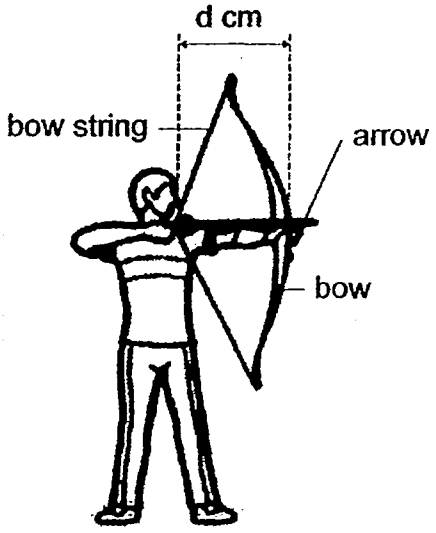
(b) A large number of D were caught by fishermen. The number of F remained the same. How would the population of plant A and the population of E change? Explain your answers. [2]

Effect on A and reason:

Effect on E and reason:

Score 3

34. Jie Zhi tried out archery at an archery range. He wants to find out how the distance, d, between the bow and bow string would affect the distance travelled by the arrow.



He recorded his results as in the table below.

Distance, d, between the bow and bow string (cm)	Distance travelled by the arrow (m)			
	1st Reading	2nd Reading	3rd Reading	Average Reading
50	53	52	54	53
55	61	63	65	63
60	76	73	73	74

(a) Name the form of energy present in the stretched bow string. [1]

_____

(b) Based on the results, explain how the distance between the bow and the bow string affects the distance travelled by the arrow. [2]

_____

_____

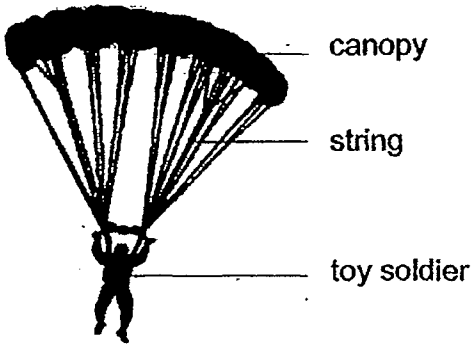
_____

(c) Besides changing the distance between the bow and the bow string, suggest another way to increase the distance travelled by the same arrow. [1]

_____

Score 4

35. Jayden dropped a toy soldier attached to a canopy of 1000 cm^2 at a certain height. He used a stopwatch and measured the time taken for the toy soldier to fall to the ground. He wanted to find out if the size of the canopy affects the time taken for the toy soldier to fall to the ground.



Set-up	Size of canopy (cm^2)	Average time taken for the toy soldier to fall to the ground (s)
A	1000	3.1
B	900	2.7
C	800	?
D	700	1.8

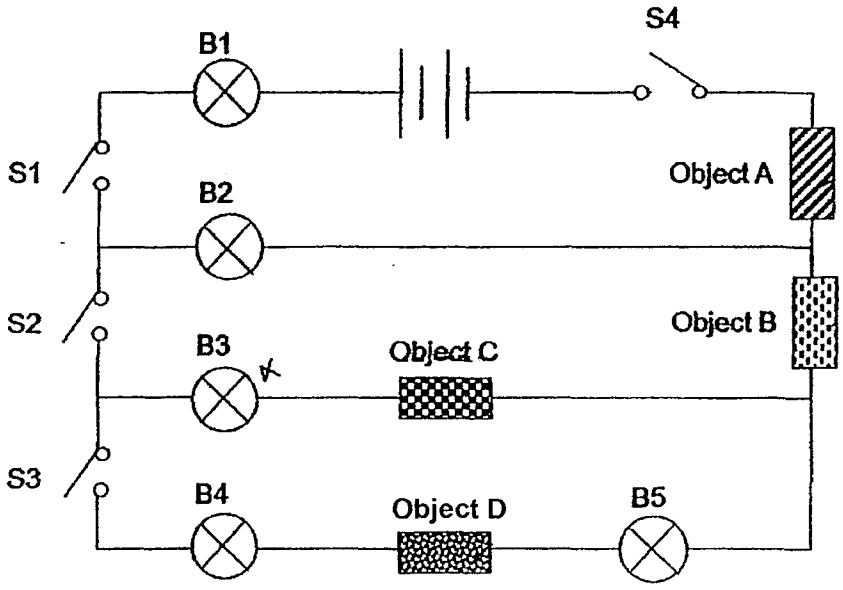
(a) What could be the average time taken for the toy soldier to fall to the ground when the size of canopy is 800 cm^2? [1]

(b) Name the force(s) acting on the toy soldier as it falls to the ground. [1]

(c) Suggest two changes to the experimental set-up if Jayden wanted to find out if the mass of the toy soldier affects the average time taken for the toy soldier to fall to the ground. [2]

Score 4

36. Joachim set up the electric circuit as shown below. He used five identical bulbs and two identical batteries in the set-up. The four objects, A, B, C and D, were made of different materials.



The table below shows the combination of switches that were closed and the bulbs that lighted up respectively.

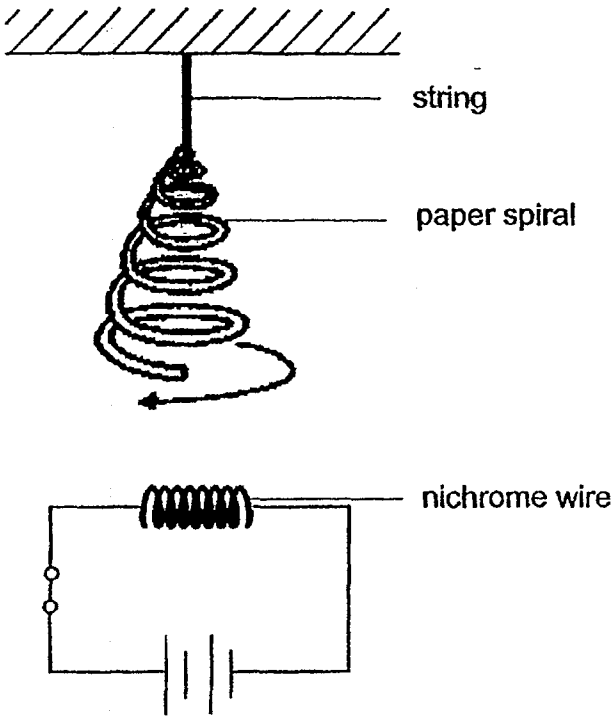
Switches that were closed	Bulbs that lighted up
S1 and S4	B1 and B2
S1, S2 and S4	B1 and B2
S1, S2, S3 and S4	B1, B2, B4 and B5

(a) Based on the information provided above, which of the objects, A, B, C and D, are electrical conductors? Give a reason for your answer. [2]

(b) Name a suitable material for object C. [1]

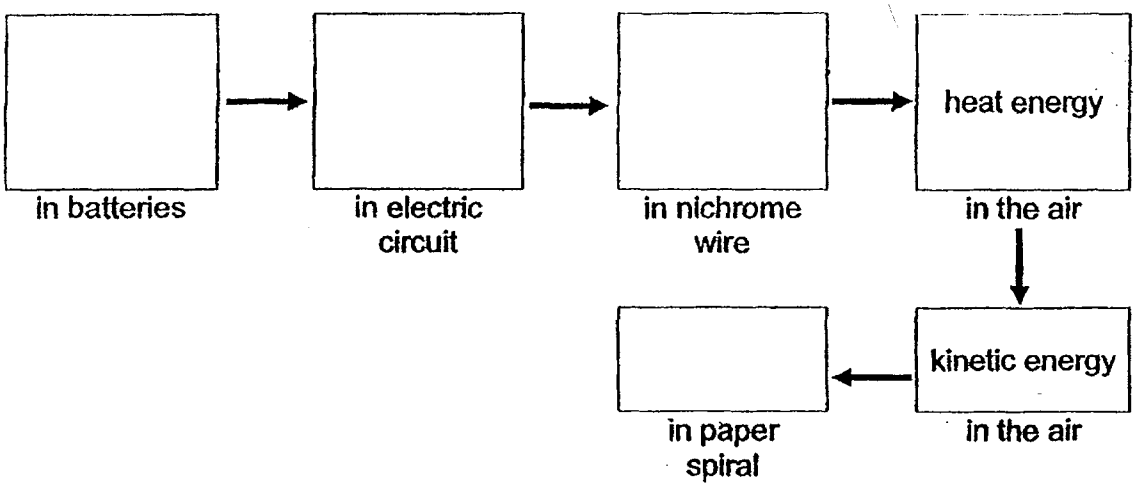
Score 3

37. Jonathan set up the experiment below during his Science lesson.



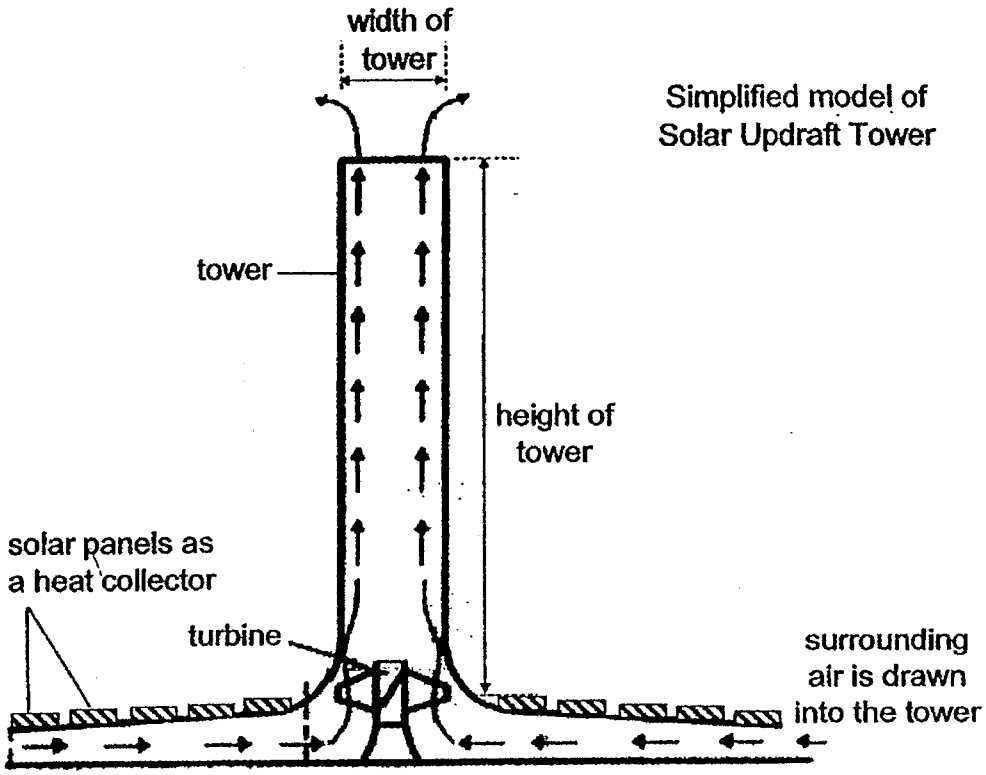
When the switch is closed, Jonathan observed that the paper spiral started spinning after some time.

(a) State the energy conversion that caused the paper spiral to spin. [1]



(b) Jonathan then added more batteries in series to the circuit. What will happen to the paper spiral after some time? [1]

(c) In 1896, Mr Alfred and his team came up with the idea of creating a solar updraft tower as shown in the diagram below. The tower draws in surrounding air and makes use of the heat from the Sun to heat up the air. The heated air then moves to turn the turbine and generate electricity.



Name the two sources of energy that enable this tower to work. [1]

_____

Score 1

(d) Using computer simulations, the team designed four models, P, Q, R and S, by changing two variables, the height of the tower and width of the tower. The speed of the air in the tower is measured and recorded.

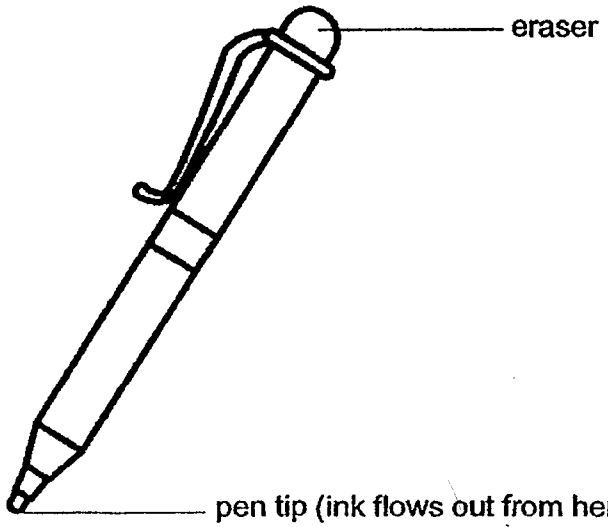
Model	Variable 1	Variable 2	Results
	Height of the tower (m)	Width of the tower (m)	Speed of air in the tower (km/h)
P	60	6	70
Q	60	12	80
R	120	6	140
S	120	12	160

With reference to the table above, which one of the variables have a greater effect on the results? Explain your answer by comparing the different models.

[2]

38. **Dr Natalie wants to develop a pen with an erasable ink that can be erased in the shortest time. At the same time, she wants to ensure that the ink does not reappear easily after being erased.**

In her development of the ink, she discovered that it is possible to use heat to make the ink colourless.



Dr Natalie tested the pen with four different inks, F1, F2, F3 and F4. She recorded the time taken for her to erase the ink using a special machine. The machine applies the same amount of force throughout the erasing process to ensure that it is a fair test. She recorded some observations from her testing in the table below.

	Observations	
Ink	**Time taken to erase the ink (s)**	**Time taken for the ink to reappear (s)**
F1	0.5	4
F2	0.4	3
F3	0.3	Ink does not reappear
F4	1.2	Ink does not reappear

(a) **Using the information provided, which ink, F1, F2, F3 or F4, is the most suitable ink to be used in the pen that Dr Natalie wants to develop? Explain your answer.** [2]

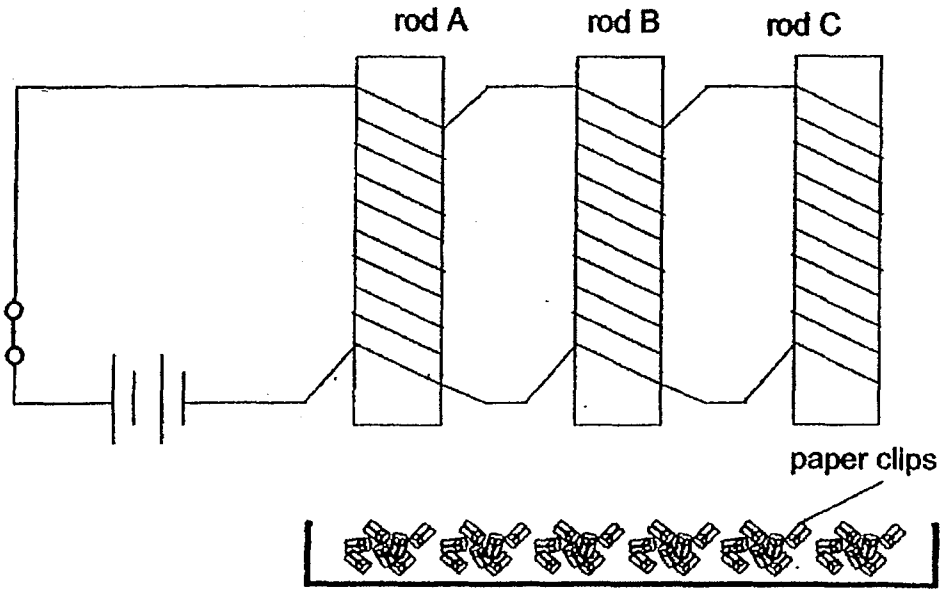
Score	2

(b) How can the eraser on the pen cause the ink to become colourless? Explain your answer using the concept of forces. [1]

(c) Dr Natalie did more tests and found out that when she tried to use the pen to write on a piece of paper placed on the vertical wall, the ink did not flow out. Explain why. [1]

Score 2

39. **Elsie set up the experiment as shown below.**



When the switch was closed, some of the rods were able to attract some paper clips. Elsie counted the number of paper clips that were attracted to the rods and recorded her results in the table below.

Rod	Number of paper clips attracted when the switch was closed
A	0
B	4
C	6

(a) When the switch was closed, some of the paper clips were attracted to rods B and C. Explain why. [1]

_____

_____

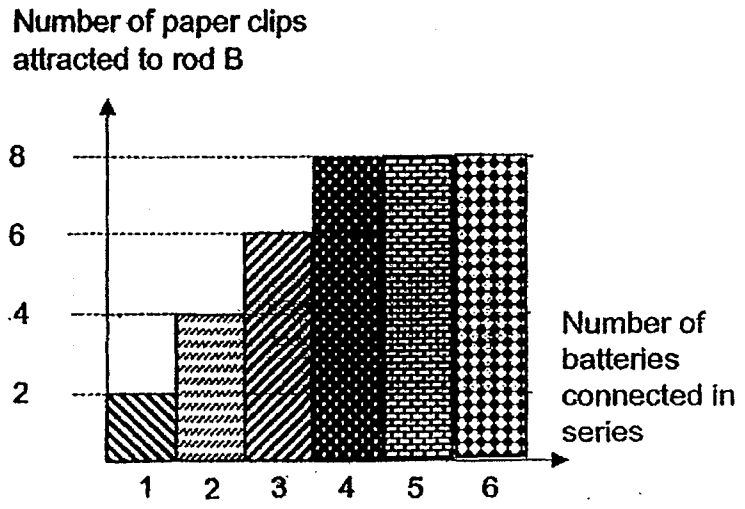
(b) Name one suitable material for rod A. Explain your choice. [1]

_____

_____

Score	/ 2

(c) Elsie continued to add batteries connected in series to the circuit. She counted the number of paper clips that was attracted to rod B.



When the number of batteries connected in series increases to more than four, she noticed that the number of paper clips attracted to rod B stays the same. Give two reasons for her observations. [2]

Reason 1: _____

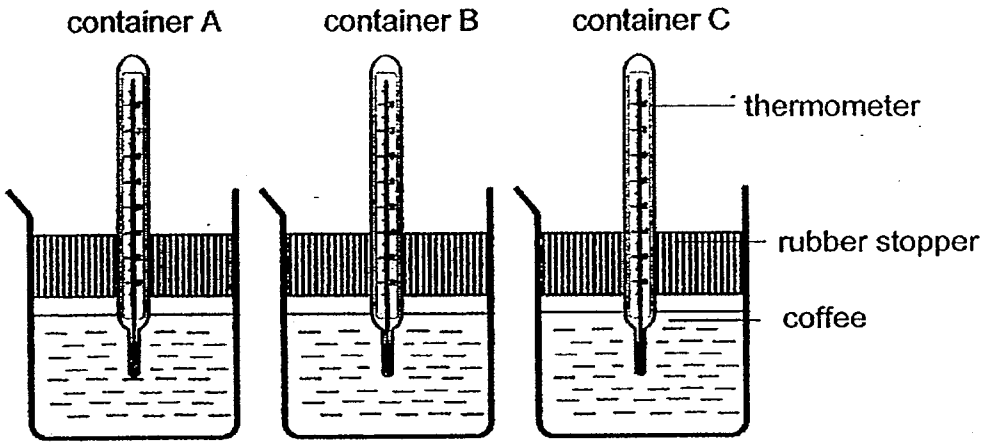
_____

Reason 2: _____

_____

Score	2

40. Faizal wants to find out which containers, A, B or C, that are made of different materials can keep his coffee hot for the longest period of time. He poured coffee at 100 °C into each container.



(a) Which variable(s) should Faizal keep the same to ensure a fair test? [1]

Place a tick (✓) in the box(es) next to the variable(s) that should be kept the same.

Variable	Keep the same
The amount of coffee in each container.	
The time taken for the coffee to reach 50 °C.	
The type of materials used to make the container.	
The thickness of materials used to make the container.	

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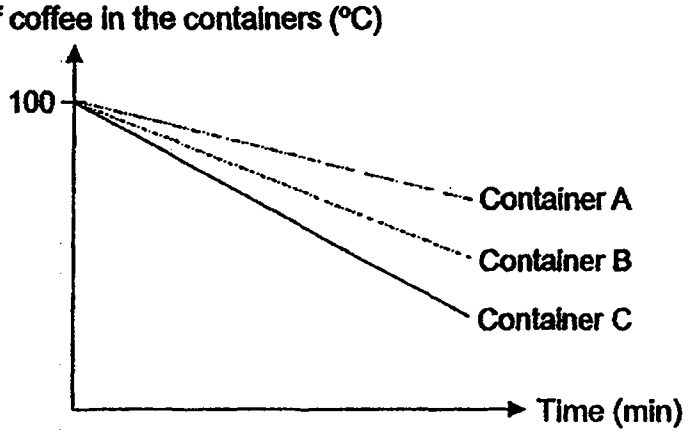
Score 1

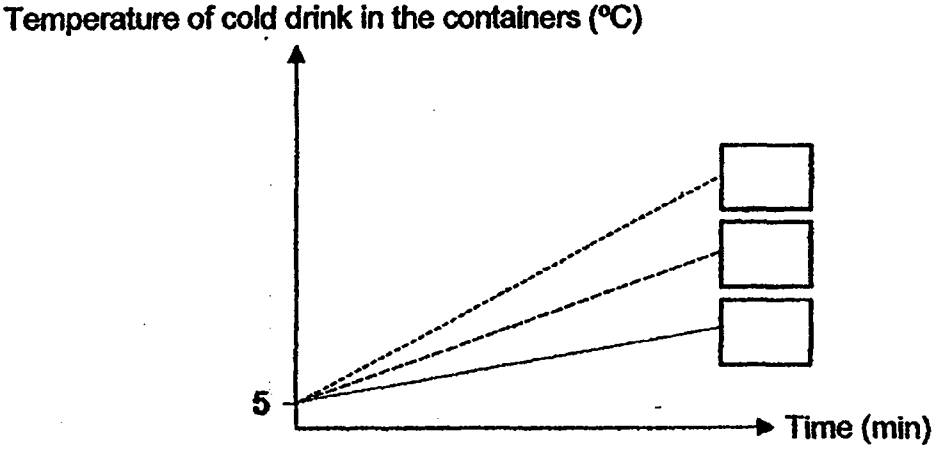
(b) Faizal recorded the change in the temperature of coffee over time and plotted the graph as shown below.



Which container, A, B or C, is the most suitable for keeping the coffee hot for the longest period of time? Explain your answer. [2]

(c) Faizal changed the aim of the experiment to find out which container, A, B or C, is the most suitable to keep his cold drink cool for the longest period of time. He recorded the change in the temperature of the cold drink over time and plotted the graph as shown below.

Write letters 'A', 'B' and 'C' in the correct boxes below to show the change in the temperature of the cold drink in the containers over time. [1]



End of Booklet B

Score	3

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SCHOOL : NAN HUA PRIMARY SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2019 SA1

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	3	2	4	4	1	3	4	1	2
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	3	3	1	3	2	4	4	1	3
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	4	4	2	1	2	3	2		

SECTION B

Q29)	a)It will reduce the number of plants that will compete with it for space, water nutrients and sunlight. b)The plants will not be able to receive sunlight and the rate of photosynthesis will decrease and thus they will not be able to make food. c)The other plants will reproduce and their population will increase as there will be less competition for resource.
Q30)	a)The mice is the only omnivore. b)6 food chains. c)The plants obtain sunlight from the sun to make food. The animals in the food web depend directly or indirectly on the plants for food.

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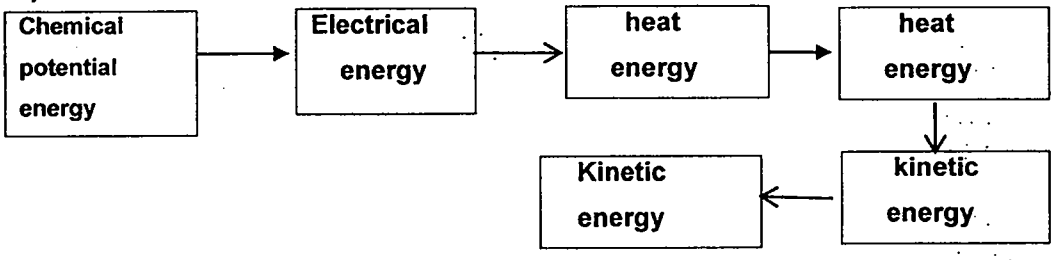
Q31)	a)To produce pollen grains. b)Bees can rub its body on the stigma and pollen grains from the anther of another flower can fertilised with the ovary and become a fruit. c)Flower X will not be able to make fruits. Without part B, there will be no female sex cell to fertilise with the pollen grains of the male reproductive part.
Q32)	a)When the number of plant X increase, the number of plant Y decrease. b)As 'X' increase, its covers most surface of the pond, preventing sunlight from reaching Y. Hence Y will not receive enough sunlight to make food and some of them will die. c)i)Plant X : Provide Z with shade. Plant Y : Animal Z can hide in plant Y to hide away from their predators. ii)Its droppings provide nutrients for Y's growth.
Q33)	a)No. C and E are only prey. D and F are only predators. b)<u>Effect on A and reason :</u> The population of plant A will decrease. When D decrease, less predators will feed on C thus the population of C will increase. When C increase more predators will feed on plant A thus the population of plant A will decrease. <u>Effect on E and reason :</u> 'E' will increase. D feeds on C. Thus, a decrease in D would lead to an increase in the number of C. Since the population of F stays the same and it feeds on both C and E, F would eat more C and fewer E, causing population of E to increase.
Q34)	a)Elastic potential energy. b)As the distance between the bow and bow string increase, the distance travelled by the arrow also increase. There is more elastic

	potential energy in the stretched bow string to be converted to more kinetic energy in the arrow. c)Use a bow string that is more stiffer.
Q35)	a)2.3s b)Air resistance and gravity. c)Replace the canopies in set-ups B, C and D with a same canopy size of 1000cm². Ensure the mass of the toy soldier in every set-up is different.
Q36)	a)A,B,D. When the switch is closed, there is a closed circuit and electric current is able to flow through objects A, B and D to light up light bulbs B1, B2, B4 & B5. b)Plastic.
Q37)	a)  b)It will spin at a faster speed. c)Sun and wind. d)The height of the tower. By comparing models P and R, when the height of the tower increases, the speed of air in the tower increases more than when the width of the tower increases in models P and Q.
Q38)	a)F3. The time taken to erase the ink is the fastest and the ink does not reappear, thus ink F3 should be used in the pen Dr Natalie wants to develop.

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	b)When the eraser rubs on the surface of the ink, there is friction between eraser and ink. The heat produced caused the ink to become colourless. **c)The ink was pulled away from the pen tip due to gravity.**
Q39)	**a)When the switch is closed, there is a closed circuit where electric current can flow through the rods B and C. The rods become electromagnets.** **b)Wood. Rod A is made of non-magnetic material and cannot be magnetised.** **c)Reason 1: There is no more space for more paper clips to be attracted to rod B.** **Reason 2 : The magnetic force is not strong enough to attract another paper clip.**
Q40)	**a)** ☐ ☑ ☐ ☐ ☑ **b)Container A. The temperature of the coffee remained the highest. It is tue poorest conductor of heat as the coffee loses the least amount of heat to the surrounding air.** **c)** C B A